

Date: Mon, 17 Oct 94 01:42:47 PDT  
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>  
Errors-To: Info-Hams-Errors@UCSD.Edu  
Reply-To: Info-Hams@UCSD.Edu  
Precedence: List  
Subject: Info-Hams Digest V94 #1129  
To: Info-Hams

Info-Hams Digest                      Mon, 17 Oct 94                      Volume 94 : Issue 1129

Today's Topics:

    anyone know anything about hallicrafters  
        Code practice on san fran  
        Ham Tests in MD/NoVA/DC area?  
    IPS Daily Report - 16 October 94  
        New HDN Releases  
        Ohio/Penn DX Bulletin #179  
        Sound Operated Phones  
    strange things in the cleveland national forest  
        TUTORIAL: dB & dBm  
        WTB: HP608D VHF sig gen

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>  
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Mon, 17 Oct 1994 04:06:24 GMT  
From: Mike Lyon <mlyon@rahul.net>  
Subject: anyone know anything about hallicrafters

i recently picked up a old hallicrafters shortwave reciever. i would like  
to see if i can get some schematics,information or anything on it. on the  
tune dial it says "Skyrider jr." and i can barely make out the model no.  
it says model "h" in a white circle and after that it says either one of  
these, i can't tell it's a little rusty, but it's either a s-416,  
s-116,s-110, s-410. it's about a foot long and about 9 inches tall and  
about 9 inches wide. and also does hallicrafters still exist? if it does  
could anyone give me the any information on how to contact them.

thank you,  
mlyon@rahul.net

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                ///////////////////////////////////////////////////
                |      Mike Lyon      |
                |      KE6MRE      |
                |      mlyon@rahul.net      |

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Date: Sun, 16 Oct 94 22:47:38  
From: buddy.sohl@shivasys.com  
Subject: Code practice on san fran

Ne> From: david\_b3@sfov1.verifone.com  
Ne> Newsgroups: rec.radio.amateur.misc  
Ne> Subject: Code Practice on San Francisco Peninsula  
Ne> Date: Mon, 10 Oct 94 02:16:52 GMT  
Ne> Organization: VeriFone Inc.

Ne> David Barnes KD6DMS  
Ne> david\_b3@verifone.com

Hi David.

I tried a direct internet response but the server kicked the message back as denied so I'll go this route. If you got my original reply let me know.

W1AW sends text from QST. The schedule is published in QST and is also available from info@arrl.org. Send in the body of the message

reply your internet add  
help  
index  
quit

You should get a response within a few hours. This is machine to machine so as often as your system checks the internet is how fast your response.

73  
BS KC4WQ

... Tried everything and it still says C:  
\_\_\_ Blue Wave/QWK v2.12

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Date: Fri, 14 Oct 1994 09:00:23 UNDEFINED  
From: dalbert@pbs.org (David Albert)  
Subject: Ham Tests in MD/NoVA/DC area?

I would like to take my No-Code Tech test...does anyone know of tests being given in the Washington DC., Suburban MD or VA area?  
Thanks!

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Date: Mon, 17 Oct 1994 02:06:46 GMT  
From: rwc@flare.syd.ips.oz.au (Regional Warning Centre)  
Subject: IPS Daily Report - 16 October 94

SUBJ: IPS DAILY SOLAR AND GEOPHYSICAL REPORT  
ISSUED AT 16/2330Z OCTOBER 1994 BY IPS RADIO AND SPACE SERVICES  
FROM THE REGIONAL WARNING CENTRE (RWC), SYDNEY.  
SUMMARY FOR 16 OCTOBER AND FORECAST FOR 17 OCTOBER - 19 OCTOBER  
-----

1A. SOLAR SUMMARY

Activity: very low

Flares: none.

Observed 10.7 cm flux/Equivalent Sunspot Number : 91/36

GOES satellite data for 15 Oct

Daily Proton Fluence >1 MeV: 8.2E+05

Daily Proton Fluence >10 MeV: 9.8E+03

Daily Electron Fluence >2 MeV: 1.2E+07 (normal)

X-ray background: B1.3

Fluence (flux accumulation over 24hrs)/ cm<sup>2</sup>-ster-day.

1B. SOLAR FORECAST

	17 Oct	18 Oct	19 Oct
Activity	Low	Low	Low
Fadeouts	None expected	None expected	None expected

Forecast 10.7 cm flux/Equivalent Sunspot Number for 17 Oct: 90/34

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2A. MAGNETIC SUMMARY

Geomagnetic field at Learmonth: quiet to unsettled

Estimated Indices :	A	K	Observed A Index 15 Oct
Learmonth	7	2313 2111	
Fredericksburg	6		9

Planetary 7

11

Observed Kp for 15 Oct: 3333 3122

2B. MAGNETIC FORECAST

DATE	Ap	CONDITIONS
17 Oct	8	Quiet
18 Oct	10	Quiet to unsettled
19 Oct	8	Quiet

-----  
3A. GLOBAL HF PROPAGATION SUMMARY

LATITUDE BAND

DATE	LOW	MIDDLE	HIGH
16 Oct	normal	normal	normal

PCA Event : None.

3B. GLOBAL HF PROPAGATION FORECAST

LATITUDE BAND

DATE	LOW	MIDDLE	HIGH
17 Oct	normal	normal	normal
18 Oct	normal	normal	normal
19 Oct	normal	normal	normal

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4A. AUSTRALIAN REGION IONOSPHERIC SUMMARY

Observed

DATE	T-index	MUFs at Sydney
16 Oct	18	near predicted monthly values

Predicted Monthly T-index for October: 20

4B. AUSTRALIAN REGION IONOSPHERIC FORECAST

DATE	T-index	MUFs
17 Oct	18	Near predicted monthly values
18 Oct	20	Near predicted monthly values
19 Oct	20	Near predicted monthly values

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IPS Regional Warning Centre, Sydney	IPS Radio and Space Services
RWC Duty Forecaster tel: +61 2 4148329	PO Box 5606
Recorded Message tel: +61 2 4148330	West Chatswood NSW 2057
email: rwc@ips.oz.au fax: +61 2 4148331	AUSTRALIA

-----  
Date: Fri, 14 Oct 1994 07:06:04  
From: Lee.Laird@f7009.n124.z1.fidonet.org (Lee Laird)  
Subject: New HDN Releases

The following files were processed Friday 10-14-94 by the Ham Dist Net  
Please allow 48 hours for files to arrive at the HDN Anonymous FTP Site.

HAMEQUIP           HAM: Radio and equipment modification distribution

-----  
RM.ZIP            563,844 Radio Manager V2.01 ICOM R-7000 controller for windows

-----  
563,844        bytes in 1    file(s)

HAMNEWS           HAM: Ham Bulletins and Newsletters

-----  
ARLB077.ZIP       2,014 10/03/94 - Morse exemption denied  
ARLB078.ZIP       1,991 10/03/94 - Tech license renewals  
ARLB079.ZIP       2,005 10/10/94 - Congress resolution passes  
ARLD060.ZIP       1,886 10/06/94 Committee vote results  
ARLP041.ZIP       2,099 ARRL Propagation Bulletin 10/07/94  
BARTG022.ZIP      4,767 BARTG Bulletin 022 October, 1994  
IRTS1002.ZIP      3,751 IRTS Bulletin 10/02/94  
IRTS1009.ZIP      3,996 IRTS Bulletin 10/09/94  
NEWS0930.ZIP      8,327 NewsLine #894 09/30/94  
NEWS1007.ZIP      8,971 NewsLine #895 10/07/94

-----  
39,807        bytes in 10   file(s)

HAMSAT            HAM: Satellite tracking and finding programs

-----  
ARLK044.ZIP       3,232 ARRL Keplerian Bulletin 10/04/94  
ARLK045.ZIP       3,231 ARRL Keplerian Bulletin 10/08/94

-----  
6,463        bytes in 2    file(s)

HAMSRC            HAM: Source to Amateur Radio Programs

-----  
WN940930.ZIP      547,840 Turbo C source WN0S940930 of KA9Q TCP/IP for P

-----  
547,840        bytes in 1    file(s)

Total of 1,157,954 in 14 file(s)

Official Ham Distribution Net FTP Server :   ftp.iaea.com     /pub/borg/hdn  
Official Ham Distribution Net E-mail        :   ab5sm@netcom.com

Official U.S. Postal Service Address : Ham Distribution Net  
P.O. Box 50003  
Dallas, Texas 75250-0003

Official Ham Distribution Net BBS' : (214) 226-1181 8N1 16.8k v32b  
(214) 226-1182 8N1 14.4k v32b  
Logon: Guest;guest

\* Origin: Africa-Asia-Australia-Europe-USA/Canada-S.America (1:124/7009)

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Date: Sun, 16 Oct 1994 16:21:00 EST  
From: kb8nw@barf80.nshore.org (Tedd Mirgliotta)  
Subject: Ohio/Penn DX Bulletin #179

SB DX @ ALLBBS \$OPDX.179  
Ohio/Penn DX Bulletin No. 179

The Ohio/Penn Dx PacketCluster  
DX Bulletin No. 179  
BID: \$OPDX.179  
October 17, 1994  
Editor Tedd Mirgliotta, KB8NW  
Provided by BARF-80 BBS Cleveland, Ohio  
Online at 216-237-8208 14400/9600/2400/1200/300 8/N/1

Thanks to the Northern Ohio Amateur Radio Society, Northern Ohio DX Association, Ohio/Penn PacketCluster Network, DF4RD, DL7VEE & DX NEWS Letter, K4CEF & Southeastern Cluster Group, WA1G, NA2M, K3DI, N4VZ, KG4ML/WB6VGI, KJ4VH, W6CF, KK6EK, N6SS, N7VEW, F8RU, G0MRF, VA3CW, VU2SMN and YU1AB for the following DX information.

5V, TOGO. Adam, N7VEW, states he has a sked with Dave, 5V7MD, on October 19th, on 14165 kHz at 2200z. After their sked, Dave will stick around for about 1 to 1 1/2 hours to work stations either from a list or freestyle. There is a possibility that Adam may become 5V7MD's QSL Manager.

8R, GUYANA. Marko, OH6DO/AB6NJ (and now VR2NJ), will be active in the CQWW SSB DX Contest as 8R1K. He is planning a serious Single Op/All Band effort. His length of stay is unknown at this time. QSLs go to OH6DO CBA only. Marko says, "please don't use other addresses."

9U, BURUNDI. Ted, F8RU, heard from Paul, 9Q5EXV, that he and a few others would be active during the CQWW Contest as 4U9U.

BS7H CARDS. Jim, W6CF, the QSL Manager for this operation, has announced that all replies went into the mail, October 15th. Card requests for

BS7H/MM did not go out because the logs have not been received as of yet. The logs are expected to arrive sometime next week.

C5, THE GAMBIA. In late October-November, the Whitton Amateur Radio Group from South West London will be mounting a DXpedition from C5-land. There will be activity on 13 amateur bands from 160 meters to 2.3GHz. This will include 6 meters and satellite via OSCAR 13 mode B and S. The Gambia is very rare on satellite and this will be the first operation on mode "S" from this location. Operating dates will be between October 23rd and November 10th, which will include activity in the CQWW SSB DX Contest. Look for C56/G0MRF and C56DX during the contest. QSL via G0MRF direct or via bureau. Note: In callbooks prior to 1994, G0MRF is listed under G8PDW.

CT3/CR9, MADEIRA ISLANDS. Frank, DL8KWS, was originally signing DL8KWS/CT3 from here but is now using the call CR9WAG. Another German operator is also active signing DL3KUD/CT3. Both stations are very active on CW and on all bands (including the WARC bands). They will be there until October 27th. QSL via their CBA.

IOTA NA-066, CALIFORNIA SOUTHERN GROUP. Bob, KK6EK (one the operators from the 3Y0PI DXpedition) will be here November 25-27th. His plans are to make a special effort on 40 meters. During the operation, he will tie into InterNet (intermittantly) and post operating skeds (on the DX Reflector).

KG4, GUANTANAMO BAY. Jeff, WI2T, will be active in the CQWW SSB Contest as a Single Op (work sked permitting) signing KG4JO. He will be using the TS-530 and antenna system at the KG4AN club station in Guantanamo. QSL via WI2T.

LX, LUXEMBOURG. A group of Dutch operators will be active from October 26-30th. They will be using the callsign LX/PA3DKC on HF (including the WARC bands) and LX/PA3CDI on 6 meters.

S7, SEYCHELLES. Andres, EA4EGZ, will be on Mahe Island from October 21-28th. Activity will be on CW, 40-10 meters.

V2, ANTIGUA. Ratko, YU1NR, will be active for 20 days starting October 26th. His activities will include participation in the CQWW DX SSB Contest, he will be on all bands and CW/SSB/SSTV/Packet. Look for him to sign V29NR. QSL via YU1NR, Novakovic Ratko, P.O. Box 145, YU-34000 Kragujevac.

VP9, BERMUDA. Dick, K3DI, informed OPDX that he will be active as K3DI/VP9 in Warwick, Bermuda from November 6-12th. QSL via his CBA or the W3 QSL bureau.

VR, PITCAIRN ISLAND. It is reported that VR6MW and other VR6-stations

are active around 0600z on 40 meters SSB (e.g. on 7083 kHz in a net).

VQ9, CHAGOS ISLANDS. This one is for the 160 meter DXers! The operations of VQ9SS and VQ8QM have ceased effective October 12th until further notice. In the meantime, look for limited operations by VQ9KC and new arrival VQ9ZX.

VU4/VU7, ANDAMAN AND LACCADIVE ISLANDS. Bruce, WA1G, received a letter from Suhas, VU2SMN, stating there are continuing plans to activate VU4 and VU7. Suhas reports that they have filed huge amounts of paperwork with the Ministry of Telecommunications over the last two years in hopes to receive a licence. They still hope to be active sometime this October, but the group cannot announce the details like exact dates of operation, call signs, QSL info, etc.... until they get the official licence in hand.

XU, KAMPUCHEA. N4VZ reports that European stations were working XU1MF on 18138 at 1515z on October 11th, but he was unable to copy him. One of the Europeans repeated back his QSL manager as JA1JTU. We've seen no mention of this station in recent bulletins or on the air.

FAX YOUR DX INFORMATION NOW! Faxing is available Monday/Wednesday/Friday from 0430 to 2330z only. The number is 216-237-8208 and the FAX card is sharing the same phone line as BARF-80 BBS using a data/fax/phone switch.

Excerpts and distribution of The OPDX Bulletin are granted as long as KB8NW/OPDX/BARF80 receive credit. To contribute DX info, call BARF-80 BBS online at 216-237-8208 14400/9600/2400/1200/300 and leave a message with the Sysop or send InterNet Mail to: aq474@cleveland.freenet.edu or send BitNet Mail to: aq474@cleveland.freenet@cunyvms or send PRODIGY Mail to: DFJH48A or send a message via packet to KB8NW @ WA8BXN.OH.USA.NA

/EXIT

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Tedd Mirgliotta KB8NW  
InterNet: kb8nw@barf80.nshore.org  
Basic Amateur Radio Frequency BBS (BARF-80) +1 216/237-8208  
"Totally devoted to Amateur Radio" - 24 Hrs a day 8/N/1 14.4k-300 baud  
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Date: Sun, 16 Oct 1994 21:39:42  
From: vaughnwt@olympus.net (Bill Vaughn)  
Subject: Sound Operated Phones

In article <1994Oct16.174029.26739@ke4zv.atl.ga.us> gary@ke4zv.atl.ga.us (Gary Coffman) writes:  
>From: gary@ke4zv.atl.ga.us (Gary Coffman)



>Subject: Re: Sound Operated Phones  
>Date: Sun, 16 Oct 1994 17:40:29 GMT

>In article <1994Oct15.191140.5782@egreen.wednet.edu> jmollan@egreen.iclnet.org  
>(John Mollan - Harm) writes:  
>>Recently I have read several books about the US Navy in WWII using  
>>sound-operated phone systems.  
>>  
>>How do these systems operate? What is the electronic theory behind it?

>They work on the dynamo principle. A dynamic microphone is used that  
>generates a voltage when sound waves vibrate a coil in a magnetic  
>field (or a magnet vibrates next to a fixed coil). That voltage then  
>drives a sensitive set of headphones at the other end of the wires.  
>Gary

And it might interest you to know that sound powered phones as they are  
referred to in the navy and coast guard are alive and well and used every day  
for intership communication.

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Date: 17 Oct 1994 04:58:52 GMT  
From: dr261@cleveland.Freenet.Edu (Tobin T Fricke)  
Subject: strange things in the cleveland national forest

I have heard about Marijuana plantations, Military  
installations, Missile silo's, and Laser and bomb  
testing areas in the Cleveland National Forest. Can  
anyone provide any additional information?

Specifically, I've heard of a VLF radio antenna that  
is suspended in a culvert below a station on Pleasant  
Peak. Anyone know about this?

Other than that, I'm interested in any nifty and/or  
little known places to explore in the vicinity of  
Orange County, California.

Please reply via Email to dr261@cleveland.freenet.edu  
and not to this newsgroup, since I do not often check  
the usenet newsgroups.

Thanks

--

Tobin Fricke                    dr261@cleveland.freenet.edu  
Duct tape is like the force; it has a light side and a dark  
side, and it holds the world together.

-----  
Date: Sat, 15 Oct 94 21:56:18 -0500  
From: pschleck@gonix.gonix.com (Paul W Schleck KD3FU)  
Subject: TUTORIAL: dB & dBm

## USING AND UNDERSTANDING DECIBELS

by

Paul H. Bock, Jr. K4MSG

Author's Note: This tutorial was originally written for the use of non-RF/analog engineers (digital, software) and non-engineers who needed an easy-to-follow reference on the general use of the decibel. I hope that some amateur operators may find it useful as well.

While the historical accuracy of the comments relating to the telephone company and telephone company engineers may be open to question (the information as supplied to me was anecdotal), the technical points made should be valid regardless of the exact turn of history.

### \*General\*

The decibel, or dB, is a means of expressing either the gain of an active device (such as an amplifier) or the loss in a passive device (such as an attenuator or length of cable). The decibel was developed by the telephone company to conveniently express the gain or loss in telephone transmission systems. The decibel is best understood by first discussing the rationale for its development.

If we have two cascaded amplifiers as shown below, with power gain factors A1 and A2 as indicted, the total gain is the product of the individual gains, or  $A1 \times A2$ .

Input >----- Amp #1 ----- Amp #2 -----> Output

A1 = 275

A2 = 55

In the example, the total gain factor  $A_t = 275 \times 55 = 15,125$ . Now, imagine for a moment what it would be like to calculate the total gain of a string of amplifiers. It would be a cumbersome task at best, and especially so if there were portions of the cascade which were lossy and reduced the total gain, thereby requiring division as well as multiplication.

It was for the reason stated above that Bell Telephone developed the decibel. Thinking back to the rules for logarithms, we recall that rather than multiplying two numbers we can add their logarithms and then take the antilogarithm of this sum to find the product we would have gotten had we multiplied the two numbers. Mathematically,

$$\log (A \times B) = \log A + \log B$$

If we want to divide one number into another, we subtract the logarithm of the divisor from the logarithm of the dividend, or in other words

$$\log (A/B) = \log A - \log B$$

The telephone company decided that it might be convenient to handle gains and losses this way, so they invented a unit of gain measurement called a "Bel," named after Alexander Graham Bell. They defined the Bel as

$$\text{Gain in Bels} = \log A$$

where  $A$  = Power amplification factor

Going back to our example, we find that  $\log 275 = 2.439$  and  $\log 55 = 1.740$ , so the total gain in our cascade is

$$2.439 + 1.74 = 4.179 \text{ Bels}$$

It quickly occurred to the telephone company engineers that using Bels meant they would be working to at least two decimal places. They couldn't just round things off to one decimal place, since 4.179 bels is a power gain of 15,101 while 4.2 bels is a power gain of 15,849, yielding an error of about 5%. At that point it was decided to express power gain in units which were equal to one-tenth of a Bel, or in deci-Bels. This simply meant that the gain in Bels would be multiplied by 10, since there would be ten times more decibels than Bels. This changes the formula to

$$\text{Gain in decibels (dB)} = 10 \log A \quad (\text{Eq. 1})$$

Again using our example, the gain in the cascade is now

$$24.39 + 17.40 = 41.79 \text{ decibels}$$

The answer above is accurate, convenient to work with, and can be rounded off to the first decimal place with little loss in accuracy; 41.79 dB is a power gain of 15,101, while 41.8 dB is a power gain of 15,136, so the error is only 0.23%.

What if the power gain factor is less than one, indicating an actual power loss? The calculation is performed as shown above using Equation 1, but the result will be different. Suppose we have a device whose power gain factor is 0.25, which means that it only outputs one-fourth of the power fed into it? Using Equation 1, we find

$$G = 10 \log (0.25)$$

$$G = 10 (-0.60)$$

$$G = -6.0 \text{ dB}$$

The minus sign occurs because the logarithm of any number less than 1 is always negative. This is convenient, since a power loss expressed in dB will always be negative.

There are two common methods of using the decibel. The first is to express a known power gain factor in dB, as just described. The second is to determine the power gain factor and convert it to dB, which can all be done in one calculation. The formula for this operation is as follows:

$$G = 10 \log \frac{P_o}{P_i} \quad (\text{Eq. 2})$$

where  $G$  = Gain in dB

$P_o$  = Power output from the device

$P_i$  = Power input to the device

Both  $P_o$  and  $P_i$  should be in the same units; i.e., watts, milliwatts, etc. Note that Equation 2 deals with power, not voltage or current; these are handled differently when converted to dB, and are not relevant to this discussion. Below are two examples of the correct application of Equation 2:

Ex. 1: An amplifier supplies 3.5 watts of output with an input of 20 milliwatts. What is the gain in dB?

$$G = 10 \log \frac{3.5 \text{ watts}}{0.02 \text{ watts}}$$

$$G = 10 \log (175)$$

$$G = 10 (2.24)$$

$$G = 22.4 \text{ dB}$$

Ex. 2: A length of coaxial transmission line is being fed with 150 watts from a transmitter, but the power measured at the output end of the line is only 112 watts. What is the line loss in dB?

$$G = 10 \log \frac{112 \text{ watts}}{150 \text{ watts}}$$

$$G = 10 \log 0.747$$

$$G = 10 (-0.127)$$

$$G = -1.27 \text{ dB}$$

#### \*Non-relative (Absolute) Uses of the Decibel\*

The most common non-relative, or absolute, use of the decibel is the dBm, or decibel relative to one milliwatt. It is different from the dB because it represents, in physical terms, an absolute amount of power which can be measured.

The difference between "relative" and "absolute" can be understood easily by considering temperature. For example, if I say that it is "20 degrees colder now than it was this morning," it's a relative measurement; unless the listener knows how cold it was this morning, it doesn't mean anything in absolute terms. If, however, I say, "It was 20 degrees C this morning, but it's 20 degrees colder now," then the listener knows exactly what is meant; it is now 0 degrees C. This can be measured on a thermometer and is referenced to an absolute temperature scale.

So it is with dB and dBm. A dB is merely a relative measurement, while a dBm is referenced to an absolute quantity: the milliwatt (1/1000 of a watt). We can apply this concept to Equation 1 as follows:

$$\text{dBm} = 10 \log (P) (1000 \text{ mW/watt})$$

where dBm = Power in dB referenced to 1 milliwatt  
P = Power in watts

For example, take the case where we have a power level of 1 milliwatt:

$$\text{dBm} = 10 \log (0.001 \text{ watt}) (1000 \text{ mW/watt})$$

$$\text{dBm} = 10 \log (1)$$

$$\text{dBm} = 10 (0)$$

$$\text{dBm} = 0$$

Thus, we see that a power level of 1 milliwatt is 0 dBm. This makes sense intuitively, since our reference power level is also 1 milliwatt. If the power level was 1 watt, however, we find that

$$\text{dBm} = 10 \log (1 \text{ watt}) (1000 \text{ mW/watt})$$

$$\text{dBm} = 10 (3)$$

$$\text{dBm} = 30$$

The dBm can also be negative, just like the dB; if our power level is 1 microwatt, we find that

$$\text{dBm} = 10 \log (1 \times 10^{-6} \text{ watt}) (1000 \text{ mW/watt})$$

$$\text{dBm} = -30 \text{ dBm}$$

Since the dBm is an absolute amount of power, it can be converted back to watts if desired. Since it is in logarithmic form it may also be conveniently combined with other dB terms, making system analysis easier. For example, suppose we have a signal source with an output power of -70 dBm, which we wish to connect to an amplifier having 22 dB gain through a cable having 8.5 dB loss. What is the output level from the amplifier? To find the answer, we just add the gains and losses as follows:

$$\text{Output} = -70 \text{ dBm} + 22 \text{ dB} + (-8.5 \text{ dB})$$

$$\text{Output} = -70 \text{ dBm} + 22 \text{ dB} - 8.5 \text{ dB}$$

$$\text{Output} = -56.5 \text{ dBm}$$

As a final note, power level may be referenced to other quantities and expressed in dB form. Below are some examples:

$$\text{dBW} = \text{Power level referenced to 1 watt}$$

$$\text{dBk} = \text{Power level referenced to 1 kilowatt (1000 watts)}$$

One other common usage is dBc, which is a relative term like

dB alone. It means "dB referenced to a carrier level" and is most commonly seen in receiver specifications regarding spurious signals or images. For example, "Spurious signals shall not exceed -50 dBc" means that spurious signals will always be at least 50 dB less than some specified carrier level present (which could mean "50 dB less than the desired signal").

          \* Paul H. Bock, Jr. K4MSG   \* Principal Systems Engineer  
(|\_|) \* E-Systems/Melpar Div.     \* Telephone: (703) 560-5000 x2062  
| |) \* 7700 Arlington Blvd.     \* Internet: pbock@melpar.esys.com  
      \* Falls Church, VA 22046   \* Mailstop: N203

"Imagination is more important than knowledge." - Albert Einstein

-----  
Date: 17 Oct 1994 01:04:03 -0400  
From: nx7u@aol.com (NX7U)  
Subject: WTB: HP608D VHF sig gen

Do you have a boatanchor yearning to be free?  
Let it take up space in my apartment instead! Give the wife an early Christmas present!  
WTB: HP608D. Not 'E', not 'C', only 'D'. with manual nice but not necessary. Please respond directly with desired reward.  
scott  
nx7u@aol.com

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Date: 17 Oct 1994 04:25:34 GMT  
From: cradek@herbie.unl.edu (Chris Radek)

References<1994Oct13.020457.4212@walter.cray.com> <37jh01\$8ck@eugene.convex.com>,  
<1994Oct14.041541.6006@ultb.isc.rit.edu>  
Subject: Re: ARRL And Gay Hams Settle Complaint

>On a more serious note, most homosexual organizations exist to  
>promote acceptance of homosexual behavior as 'normal' and even  
>a Good Thing.

>73...Jim N2VNO

No, actually most "homosexual" (try gay sometime - it's less clinical) organizations exist to promote the fact that we're human, just like everyone else, and just like everyone else we want and deserve to be treated as such. Nobody is trying to "sell" you on being gay; God knows gay people have enough trouble without folks like you on our side of the fence... I had

hoped that technology might help bridge gaps in understanding between people with different feelings and beliefs, but it looks like misunderstanding is still alive and well here.

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End of Info-Hams Digest V94 #1129

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